

NOTES ON THE GENUS *METOPHIUS*, WITH DESCRIPTION  
OF A NEW SPECIES AND TABLE OF SPECIES.

BY C. L. MARLATT.

Prof. Riley recently received from Mr. Lawrence Bruner a peculiar Ichneumonid which had been collected in South Dakota by Mr. J. M. Aldrich. An examination showed at once that it was a female belonging to the genus *Metopius*. I recalled having collected two specimens of a closely allied, if not the same, insect in Kansas, and had them forwarded to me. They were duly received, and proved to be identical with the Dakota specimen, and were both females. These three females, together with two additional females received later from Mr. Aldrich, while belonging undoubtedly to the genus *Metopius*, differ in a very striking manner from males of several species in the National collection—there being no females represented—and might even be considered to belong to an entirely distinct genus. So strikingly do they differ from the males seen, and from the description of the genus by Gravenhorst, and later by Brullé, and also from all the descriptions of females, most of which I have been able to consult, that it struck me very forcibly at first that perhaps a female of this genus had never been characterized, and that the supposed females described were in reality males! Examination, through the kindness of Mr. Cresson, of the specimens of this genus in the collection of the American Entomological Society at Philadelphia, subsequent to the reading of this paper, showed me that I was in error in this, but indicated very plainly that my specimens differed very materially from all other described species and also in important particulars from the genus as at present understood.

The genus *Metopius* is perhaps better characterized and more distinctly separated from other genera than any other genus of Ichneumonidæ. The peculiar features are the very prominent shield on the face, the antennæ, the character of the thorax and venation of the wings, in all of which particulars my specimens agree; but the description of the genus by Gravenhorst and Brullé, and also of all the species which I have been able to consult, agree in describing the abdomen of both the male and female as completely depressed—at first with the sides nearly parallel, and then slightly widening posteriorly. The ovipositor is said to be nearly concealed, and in the case of the females examined by me, and so far as indicated by the descriptions of the others, is of small size, not exceeding, when fully exerted, one-fourth the length of the abdomen.

In the case of the specimens under discussion, however, the abdomen tapers rapidly from the base to the apex, which is pointed and decidedly compressed. The ovipositor is enormously large in comparison with the size of the insect, being of sufficient size to nearly fill the abdomen from base to apex, and when fully exerted, as it is in the case of two specimens, is with the large basal portion nearly twice the length of the abdomen. With the other specimens the ovipositor is but slightly exerted, or almost entirely redrawn into the abdomen.

The striking character of the ovipositor of this insect is shown in the accompanying illustration. The ovipositor includes with supports the 7th and 8th abdominal segments, and

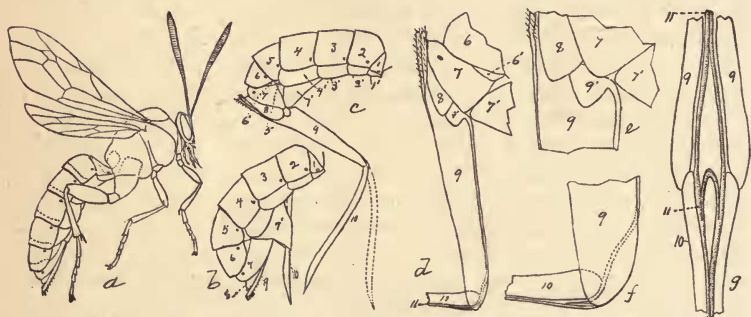


FIG. 5.—*Metopius rileyi*: *a*, female from side; *b*, abdomen of same, showing ovipositor partly exerted; *c*, same, with ovipositor entirely exerted; *d*, *f* and *g*, terminal segments of abdomen and parts of ovipositor still more enlarged (original).

all these parts are uniformly shining and reddish-black in color. The connection between the base of the support (9) and segments 7 and 8 is very intimate—the lines in the illustration indicating the union of the plates appearing as scarcely perceptible sutures. The support (9) is deeply grooved beneath, or rather consists of two plates, and the ovipositor proper (10) closes into it like the blade of a knife. At the extreme base of the support and projecting slightly posteriorly, are the hairy sheaths, and at the tip of the 8th segment are the minute stylets found in most Hymenoptera.

The ovipositor proper consists of the customary three parts, viz: the sheath or lower envelope (10) and two spiculæ (11). The base of former is enclosed by and quite firmly attached to the apex of the support, with which it forms a sort of ball and socket joint (Fig. 5, *d*, *f* and *g*). The spiculæ branch near the base of the sheath; the inner branches unite,

forming a loop, and the outer pass over the enlarged base of the sheath, and continue along the upper edge of the support and unite with plate 9'. The parts are shown somewhat separated at *g*, to better indicate their relation. The open spaces between the spiculæ and the support are enclosed by a membrane which forms with these parts a closed passage for the egg from the abdomen to the ovipositor proper.

Another peculiar feature is the great size and abnormal position of what apparently corresponds with the 7th ventral arc of the abdomen 7'. The outer portion of this arc or plate is tough, and in texture and color resembles segments 7 and 8 and the support 9; the inner portion is thinner and more flexible and lighter in color, becoming membranous at the point of attachment. It is attached within, and is, when the ovipositor is entirely redrawn, nearly concealed by the 3rd to 5th ventral arcs, as shown at *a*. As the ovipositor is thrust out this arc is considerably drawn out, as represented at *b*, and to thrust the ovipositor quite out, as represented at *c*, it would seem that this sheath must necessarily be ruptured; but this is not the case with the two specimens collected having the ovipositor fully extended, and probably never occurs. The explanation undoubtedly is that as the ovipositor is pushed out this sheath-like plate slips back and the terminal segments extend and separate at the same time sufficiently to free the ovipositor.

Nothing is known of the breeding habits of the American species of *Metopius*; the specimens collected by me were taken in the fall on *Solidago* bloom and in company with *Trypeta solidaginis*, and it is possible that the *Metopius* is parasitic on this Dipteron, the powerful ovipositor of the female being well suited for piercing the *Trypeta* galls. The breeding records of European species—ascertained for me by Mr. Howard—do not support this belief, as they show that the rearings have been from various Bombycids, a Noctuid, and one doubtful one from *Lophyrus pini*.

I have altered the characterization of the genus *Metopius* to allow of its including this anomalous species, which I take pleasure in dedicating to Prof. C. V. Riley, whose interest and work in the parasitic Hymenoptera are well known.

***Metopius*** Gravenhorst.—*Head* transverse, short; face scutiform, sub-concave, with elevated margins; eyes oval. *Antennæ* ranging from short and somewhat spindle-shaped to long and of nearly uniform thickness throughout. *Thorax* convex; scutellum quadrangular, with prominent posterior angles and carinate lateral margins. *Wings* medium, areolet large and rhomboidal. *Abdomen* sessile, usually compressed

throughout and widening posteriorly ; in some species, however, narrowing uniformly from the base to apex, which is somewhat compressed ; ovipositor capable of being almost entirely redrawn into the abdomen, and generally of small size—occasionally exerted, however, and large and powerful. The males have attached to the terminal ventral plate of the abdomen two curved appendages, forming a sort of pincers, which is supposed to be of service in copulation. *Legs* medium, posterior femora thickened ; tarsi longer than tibiae, which are armed with two spurs at tip.

*Metopius rileyi*, n. sp.—♀ Black ; spot beneath the antennæ, scape beneath, line on inner orbit, line below base of wings, apex of scutellum and line behind, two spots at side of meta-thorax apex of all the abdominal segments, exterior of anterior tibiae and apex of posterior femora, lemon yellow ; base and apex of antennæ and legs fusco-ferruginous, posterior femora almost black, trochanters reddish ; antennæ one-third length of body, thickened toward apex ; wings fuliginous, distinctly darker on anterior half, hind apical portion hyaline ; thorax and abdomen coarsely punctured ; abdomen narrowing uniformly from base to apex and compressed at apex, oviposits extremely large and with large basal portion or support when retracted almost entirely filling the abdomen. Length 8-10 mm.

Described from five specimens—all females—collected in Kansas and South Dakota.

The following table will assist in the determination of the North American species of this genus :

#### TABLE OF SPECIES.

1.—General color black.....	2
General color yellow and ferruginous.....	<i>pulchellus</i> Cr.
2.—Abdomen entirely black.....	<i>hageni</i> Cr.
Abdomen more or less marked with white or yellow.....	3
3.—Wings hyaline or yellowish hyaline.....	4
Wings more or less fuliginous.....	6
4.—Abdomen mostly yellowish white or ferruginous ; scutellum basally black.....	5
Abdomen mostly black ; scutellum entirely yellow.....	<i>scitulus</i> Cr.
5.—Abdomen sulphur yellow ; segments more or less black basally.....	<i>montanus</i> Cr.
Abdomen with base of segments 1-3 and middle of 4 ferruginous.....	<i>comptus</i> Cr.
Abdomen pale yellow ; base of segments 1-3 black ; remaining segments each with two black spots at base.....	<i>bellus</i> Cr.
6.—Costal margin distinctly darker.....	7
Costal margin not distinctly darker.....	12

- 7.—First segment of abdomen entirely yellow..... 8  
 First segment black at base..... 9
- 8.—Following segments yellow and ferruginous..... *mirandus* Cr.  
 Following segments with basal black band, widest on segments  
 2 and 3.....*concinus* Cr.
- 9.—With yellow spot at side of apex..... *laticinctus* Cr.  
 With broad yellow or white band at apex..... 10
- 10.—Scutellum white, legs marked with black.....*robustus* Cr.  
 Scutellum yellow, legs rufous.....*rufipes* Cr.  
 Scutellum black at base..... 11
- 11.—Second segment black with lateral yellow spots.....*edwardsii* Cr.  
 Second segment with yellow band at apex.....*rileyi* n. sp.
- 12.—Second, third and fourth segments of abdomen rufous.....  
*\*terminalis* Ashm.  
 Second and third segments black, marked with yellow..... 13
- 13.—Stigma fuscous, first segment with broad yellow band at apex.....  
*pollinctorius* Say  
 Stigma yellow, first segment with two yellow spots at apex.....  
*xanthostigma* Ashm.

Mr. Howard read the following paper :

### THE HABITS OF PACHYNEURON.

BY L. O. HOWARD.

Pachyneuron is a genus of hymenopterous parasites of the family *Chalcididæ*, sub-family *Pteromalinæ*, and tribe *Sphegigastrides*. It is composed of small species, all under 3 mm. in length, of metallic colors—usually rather dull—large heads, flat, oval abdomens, and not very active habit. Six European and six North American species have been described. Three of the six European species were described from captured specimens, and nothing is known of their habits. Of the other three Bouché evidently reared his *P. aphidis* from some plant-louse; Ratzeburg says of his *P. coccorum*: "1 ♀ from

\*This species is certainly wrongly referred to the genus *Metopius*. In addition to the fact, noted by Mr. Ashmead, that the facial shield is entirely wanting, it differs from the genus in venation—the areolet being small, triangular and petiolate instead of large and rhomboidal—and also in character of thorax and abdomen. The scutellum approaches that of *Metopius* but is longer and narrower than in any described species known to me. This insect may be referred to the genus *Tryphon*, with which it agrees in every particular except that the metathoracic spiracles are slightly oval instead of round.